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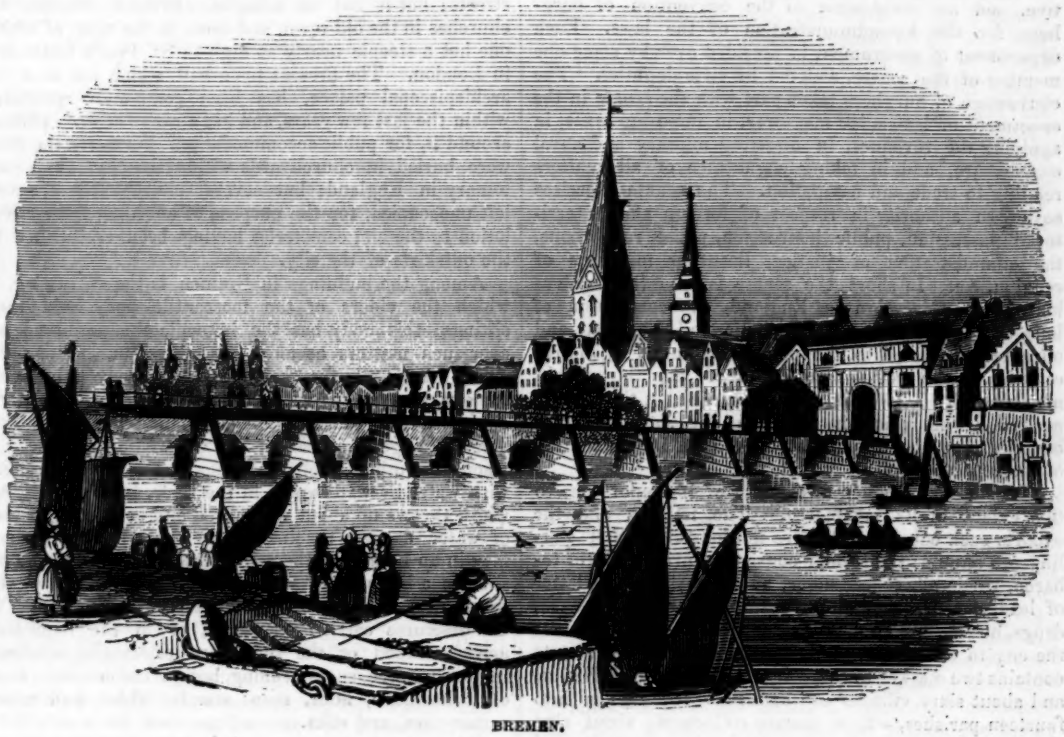
THE HANSE TOWNS OF GERMANY



BREMEN.

In our Supplement on the Hanseatic League, (Vol. XVIII., p. 249,) we gave a list of the towns of that celebrated confederation at the time when it had attained the zenith of its power. At the commencement of the eighteenth century, the number of Hanse Towns was reduced to six, viz.: Bremen, Lubeck, Hamburg, Rostock, Dantzic and Cologne. We have already described Cologne and Hamburg*, and now propose to notice the other four important cities. We must, however, remark that the peculiar privileges of Hanse Towns, have long been confined to Lubeck, Bremen and Hamburg: they are accounted free cities, members of the German confederation, and have one vote each in the diet by which its affairs are arranged.

In the north of Germany the name of *Bremen* is subject to three different applications. There is a province of Hanover, situated between the rivers Elbe and Weser, and comprising an area of about two thousand square miles, called *Bremen;* there is a small district situated on either side of the Weser, and comprising an area of about seventy miles, also called *Bremen;* and lastly, there is a city contained in this small district also called *Bremen.* The political circumstances which gave rise to these different applications of the same name, were as follow. A town, called Bremen, rose into note about the year A.D. 788, when the Emperor Charlemagne made it the seat of a bishopric, which probably extended a considerable distance towards the Elbe, on the banks of which the city of Hamburg was situated. In the year 858, it was incorporated with the archbishopric of Hamburg, through which act so violent a disagreement arose between the two cities, that it was found necessary to separate them; and after the lapse of some time Bremen became the seat of an archbishopric. This archbishopric corresponded in extent with the present Hanoverian province or duchy of Bremen; but it was afterwards secularized, that is, made into a duchy instead of an archbishopric. Sweden conquered it in 1648; Denmark obtained possession of it in 1712; and lastly, it was sold to Hanover a few years afterwards, in whose possession it still remains. Meanwhile the town of Bremen had been gradually increasing in importance; it prospered greatly as one of the Hanse Towns, even when under the ecclesiastical authority of its archbishop; and enlarged the sphere of its operations when made one of the "free towns" of the empire, by Otho the First. It continued to enjoy the privileges of a separate state until Bonaparte seized it in 1810. After the battle of Waterloo, the congress of Vienna restored the liberty of the city, and gave a small district surrounding it, as part of its territorial possessions; in the same manner as was done to the cities of Hamburg and Frankfort. The reader will hence understand, that the *city* of Bremen is one of the three independent towns of the Germanic confederation; that the *state* of Bremen is a small district which surrounds, and is under the jurisdiction of the city; and that *duchy* of Bremen is a province of Hanover, once connected with, but now wholly severed from, the city of Bremen.

With the duchy of Bremen we have nothing farther to do in this place: but shall proceed to speak of the state

* See *Saturday Magazine*, Vol. VI., p. 170, and Vol. VII., p. 50.

of Bremen, as an independent power; and afterwards of the city itself. The legislative power of the state is vested in a senate, consisting of four burgomasters, two syndics, and twenty-four senators; besides which there is the convention of burghers, composed of all resident citizens who pay a certain amount of taxes. The senators, who are chosen for life, are elected out of a certain number of candidates proposed by the burghers; each election taking place at the death of a senator, and the power of election residing in the other senators, who vote by ballot. The senators form the executive, and are responsible to the convention of burghers for the due administration of the laws. Each department of government is presided over by some one member of the senate, assisted by civic deputies. The convention of burghers takes part with the senate in the enactment of legislative measures, in imposing taxes, in applying the revenues, in directing military and naval expenditure, and in taking cognizance of all matters relating to trade and navigation. The senate exercises sovereign authority in respect of foreign affairs, territorial possession, public instruction, police regulations, the administration of justice, licensing ministers of religion, &c. In short the senate is somewhat equivalent to the Sovereign in England, the convention of burghers to the House of Commons, and the senate and burghers combined to the parliament in its legislative capacity. The state forms one of the thirty-eight members of the Germanic confederation, in the diet or parliament of which it possesses one vote; and it is bound to furnish a contingent of 485 men to the army of the confederation.

The state of Bremen owes most of its importance to the extent of its commerce. The imports and the exports each equal about three millions and a half sterling per annum; the former consisting principally of tobacco, whale-oil, coffee, sugar, and wine; and the latter of lead, copper, iron, glass, grain, timber, bark, potash, drugs, hemp, flax, wool, paper, tobacco-pipes, &c. Besides the city to which it owes its importance, this little state contains two market towns, Vegesack and Bremer-Haven, and about sixty villages and hamlets. It is divided into fourteen parishes, which contain collectively about nine thousand houses, and sixty thousand inhabitants; of which number about forty-four thousand inhabit the city. The greater part of the inhabitants are Protestants; the number of Roman Catholics and of Jews being but small. The surface of the land is low, and consists principally of a marshy soil. Small as is its extent, it is watered by no fewer than six or seven affluents of the Weser, besides water-courses and canals. Neither wood nor grain are grown in large quantities; but the pastures are very rich, and support a fine breed of horned cattle.

We must now take a glance at the city itself. Bremen is divided by the river Weser into two unequal portions, of which one, termed the Altstadt, or "old town," is on the right bank of the river, and the other, called the Neustadt, or "new town," is on the left. The two towns are united by a bridge over the Weser, which passes through a small island called the Werder. Both sides of the river are lined with quays, from which a fine view of the town is obtained. The old town consists principally of narrow, crooked streets, rendered very gloomy by the loftiness of the houses. It has very large suburbs, diversified with handsome mansions, villas and gardens; it was formerly surrounded with ramparts and bastions, but these have been levelled and converted into delightful promenades, across which six roads enter the town. The only open space of any considerable magnitude in the old town is the "dom-hof" or cathedral square, and the market-place. The Cathedral is a venerable gothic structure, nearly seven hundred years old: it is about three hundred feet long, and a hundred and twenty wide; beneath it is a cellar called the "lead cellar," from the circumstance that the lead for the roof was melted and prepared in it, but it is now occupied by several mummy-like bodies, which have reposed here more than two centuries. An old town-hall, built in 1405, is chiefly noted for the curious wine-vaults beneath. It is called the Rathsweinkeller (council's wine-cellar), and is said to contain Hocheimer and Rüdesheimer wine nearly a century and a half old, and Hock more than two centuries old; along one side of the vaults are a number of small apartments, for the reception of visitors.

The new town, which was begun in the year 1625, is built in a very regular manner, with broad and handsome streets; but it has no suburbs. Bremen contains six churches in the old town, and three in the new, of which one has a steeple nearly as high as St. Paul's Cathedral in London. The present town-hall, which was once the archiepiscopal palace, has been completely renovated within the last few years, and has a range of open piazzas around it, for public accommodation. Formerly the dead were buried in churchyards within the city, as is customary in England; but several churchyards are now left unoccupied, for the purpose of affording freer circulation to the air; cemeteries having been established in the outskirts of the city.

Among the buildings in Bremen is the *Schütting*, in which the elders of the mercantile body hold their sittings; this body has the immediate superintendance over such matters as affect trade and navigation; the elders are gerents for the commercial body only, being in no way connected with the government or legislature, except as individual members of the one or the other. The exchange, the arsenal, and the weighing-house, are among the other public buildings. The city is supplied with water by waterworks in the river, by which a great wheel throws up about a hundred and twenty hogsheads of water at each revolution; the revolutions are about fifty in an hour, and the water thus thrown up is deposited in a large reservoir. Besides these water-works, there are a number of public wells in the city. The manufactures carried on within, or in the immediate neighbourhood of the town, are principally woollens, leather, tobacco, sugar refining, beer, brandy, spirits, rape-oil, whalebone, flour, soap, starch, cables, and ropes, cotton-yarn, and silks.

Of the institutions connected with education and science, are two gymnasia and a high school; schools for trade and navigation; the city library; Dr. Olbers' observatory, from which he discovered the two asteroids, Pallas and Vesta; thirty parochial and elementary schools; two orphan asylums, where three or four hundred orphans are maintained and educated, and the museum, which contains a large library, collections in natural history, mechanics, the arts, &c., as well as lecture and reading rooms. Of the origin of this museum Holcroft gives a curious account:—

The Germans deserve high praise, as well for their public as private efforts to obtain and promote knowledge. In rude houses, where no man would have expected the least relic of science, and which not only taste but common convenience seemed to have forsworn, I have met with men as I travelled, who abounded in knowledge; and who spoke even of the fine arts so as to prove, though they had not seen, they had read. To this love of literature the Museum at Bremen is indebted for its origin. When Lavater's expensive work on physiognomy appeared, three of the inhabitants, exceedingly desirous to read it, proposed to each other to purchase it in common, and peruse it in turn. This suggested the convenience of buying other books; and at last of clubbing their small libraries, hiring a common room, and having each a key. Pipes and tobacco could not be forgotten: ice to a Neapolitan is not a more pressing want. Here they came, read, smoked, and meditated; whenever they had leisure. From this small beginning the society grew; and the spirit with which it has been maintained, the generosity of its members, the ardour of their zeal, and their thirst of inquiry, have been rewarded by the pleasures which knowledge affords, and the applause of the surrounding cities.

The inhabitants of Bremen are rather short in stature, and form a striking contrast with the tall southern Germans. They are simple and frugal in their manners, and retain many very primitive modes of living. The usual hour of dinner is eleven o'clock in the forenoon; but on Sundays it is the practice to breakfast at six in the morning, and to dine at ten. They are obliging, frank, charitable, and hospitable in their dispositions; industrious, orderly, and peaceful in their habits; possessed in general of good natural abilities, improved by a liberal education; and are well acquainted with the chief departments of useful knowledge.

SPARE MINUTES.

MEDITATED RESOLVES AND RESOLVED MEDITATIONS.

I.

It is the over-curious ambition of many to be best or to be none: if they may not do so well as they would, they will not do so well as they may. I will do my best to do the best, and what I want in power, supply in will. Thus while I pay in part, I shall not be a debtor for all. He owes most that pays nothing.

Pride is the greatest enemy to reason, and discretion the greatest opposite to pride; for while wisdom makes art the ape of nature, pride makes nature the ape of art. The wise man shapes his apparel to his body, the proud man shapes his body by his apparel. 'Tis no marvel then if he know not himself, when he is not to-day like him he was yesterday, and less marvel if good men will not know him, when he forgets himself and all goodness. I should fear, while I thus change my shape, lest my Maker should change his opinion, and finding me not like him he made me, reject me as none of his making. I would any day put off the old cause of my apparel, but not every day put on new-fashioned apparel. I see great reason to be ashamed of my pride, but no reason to be proud of my shame.

The reason that many men want their desires is, because their desires want reason. He may do what he will that will do but what he may.

I should marvel that the covetous man can still be poor when the rich man is still covetous, but that I see a poor man can be content when the contented man is only rich, the one wanting in his store, while the other is stored in his wants. I see then we are not rich or poor by what we possess, but by what we desire. For he is not rich that hath much, but he that hath enough; nor he poor that hath but little, but he that wants more. If God then make me rich by store, I will not impoverish myself by covetousness, but if he make me poor by want, I will enrich myself by content.

Hypocrisy desires to seem good rather than to be so: honesty desires to be good rather than seem so. The worldlings purchase reputation by the sale of desert, wise men buy desert with the hazard of reputation. I would do much to hear well, more to deserve well, and rather lose opinion than merit. It shall more joy me, that I know myself what I am, than it shall grieve me to hear what others report me. I had rather deserve well without praise, than do ill with commendation.

A coward in the field is like the wise man's fool: his heart is at his mouth, and he doth not know what he does profess: but a coward in his faith is like a fool in his wisdom; his mouth is in his heart, and he dares not profess what he does know. I had rather not know the good I should do, than not do the good I know. It is better to be beaten with few stripes than with many.

Each true Christian is a right traveller: his life his walk, Christ his way, and Heaven his home. His walk painful, his way perfect, his home pleasing. I will not loiter, lest I come short of home: I will not wander, lest I come wide of home, but be content to travel hard, and be sure I walk right, so shall my safe way find its end at home, and my painful walk make my home welcome.

[Arthur Warwick, 1687.]

AN IMPROVED METHOD OF SOLDERING METALS.

I.

When two pieces of iron are to be united, it is sufficient to heat them nearly to the fusing point; to place them in contact, when by means of quick and forcible hammering, they will become united as one piece. This process is called *welding*, and is peculiar to iron; the union of other metals being effected by the interposition of a metallic cement called *solder*. This substance fuses at a lower temperature than the metal to be soldered. The plumber uses a solder composed of tin and lead. The solder of the coppersmith is an alloy of copper and zinc. Hard and soft solders are used for brass; the former is composed of brass and zinc, and the latter of brass, zinc, and tin. Before soldering, the surfaces of the metals which are to be united must be made bright, smooth, and level, and free from oxide, otherwise the solder will not adhere: the contact of air must also be excluded during the soldering, because it is apt to oxidise one or other of the surfaces, and thus prevent the adhesion of the solder. Various artifices are adopted for excluding the air. The locksmith encases in loam the articles of iron or brass which are to be subjected to a soldering heat; the silversmith and brazier mix their respective solders with moist borax-powder; the coppersmith and tinman apply sal-ammoniac, rosin, or both, to the cleaned metallic surfaces, before using the soldering-iron to fuse them with the tin-alloy.

The great object of soldering is, of course, to form joints or seams in pipes, and other articles, so perfectly, that they shall be subject to no leakage or flaw. But this object is not easily obtained by the old method of soldering: the chances of flaw are numerous, and have been enumerated thus:—1st, the difference of expansion between the lead and its alloys with tin, a difference which is particularly experienced in very cold or very elevated temperatures; 2nd, the electro-chemical actions which are developed under certain circumstances by the contact of two different metallic substances*; 3rd, the very powerful re-action which a number of chemical agents exert on alloys of lead and tin, though not upon lead alone; 4th, the extreme fragility of these alloys, which, particularly when heated, often break on the slightest blow; 5th, the difficulty of making the solder adhere to the surface of the lead†; 6th, the use of rosin, which frequently conceals fractures for a time.

All of these objections are removed by a new method of soldering, invented by M. E. Desbassays de Richemont, who has recently obtained, at the National Exhibition of Arts at Paris, a gold medal for his invention. The committee on whose recommendation the medal was awarded, included some of the most distinguished chemists and men of science in France; and in their report on the subject they say:—

We consider this invention of the highest importance; it is applicable to many branches of industry, and will render great service to a large number of manufactures. Its efficacy has not only been proved by experiment, but is confirmed by the fact that most of our eminent manufacturers and tradesmen have taken out licenses for the use of it.

This invention (which is patented in France, Great Britain, and Ireland,) is called *autogenous soldering*, and consists of a method of uniting two pieces of metal without the use of solder. The parts to be joined are united by the fusion of the metal at the points or lines of junction; so that the pieces when joined form one homogeneous mass, no part of which can be distinguished

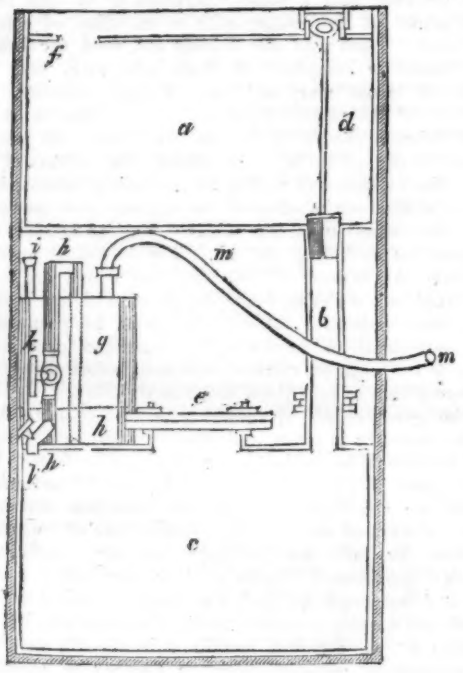
* Messrs. Vanquelin and D'Arcet state that they have seen in soap-works the soldering of vats lined with lead, crumble in a few days to a powder. The same has been remarked of leaden pipes passing through certain soils.

† The solder often sticks without uniting, and the workman may be quite ignorant of his imperfect work, and thus gas, water, or dangerous liquids, may be allowed to escape.

from the rest. This result is obtained by means of jets of flame, produced by the combustion of hydrogen gas, mixed with atmospheric air; these jets are so ingeniously managed that they can be used and directed with as much, or even more facility than the common tools of the solderer.

The apparatus employed in this new process consists of a peculiarly constructed vessel for producing hydrogen gas, to which vessel a variety of tubes and jets can be attached, so as to meet the various demands of the solderer.

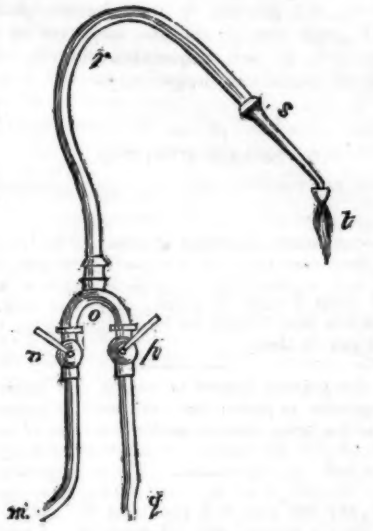
Fig. 1.



A section of the gas-producer is shown in fig. 1: *a*, is leaden tank, for containing dilute sulphuric acid; *b*, a pipe which passes from the acid vessel to another similar leaden vessel, *c*, which is to contain cuttings of zinc; *d*, is a conical plug with a stalk and handle covered with lead, by the opening of which the acid is allowed to flow through the pipe, *b*, to the zinc-cuttings, and thus hydrogen gas is produced; *e*, is an opening by which zinc is put into the vessel, *c*. The opening, *e*, has a cover furnished with screws and nuts, by which it may be firmly secured; *f* is an opening by which acid and water are poured into the vessel, *a*. When the hydrogen gas is produced, it has to pass through the safety chamber, *g*; *h* is a bent tube or pipe, which conducts the gas from the vessel, *c*, to the bottom of the safety chamber, the mouth of the pipe dipping into an inch or two of water in the safety chamber. This water is introduced by the pipe, *i*, which is furnished with a stopple. The cock, *k*, cuts off the flow of gas from the vessel, *e*, to the safety chamber, *g*. A flexible tube, *m*, is screwed to the top of the safety chamber, and conveys the gas to the working instrument, or jet, in the hands of the solderer.

As long as the dilute acid is allowed to flow upon the zinc, hydrogen gas will be produced: the gas will also be formed as long as the cock is open, which allows the gas to issue as it is produced; but as soon as the cock is shut, a small quantity of gas accumulates, and interferes with the further action of the liquid on the zinc. Consequently, there is no danger of an explosion, because the production of the gas is never more than is required for working; and when the work ceases, the production of the gas ceases also. When the dilute acid has become saturated with oxide of zinc, and gas ceases to be produced, the discharging pipe is opened, and the liquid withdrawn. By spontaneous evaporation, this liquid furnishes sulphate of zinc (white vitriol,) which may be sold at a price which will more than cover the first and daily cost of the apparatus.

Fig. 2.



We now proceed to describe the part of the apparatus with which the workman operates. In fig. 2, the flexible tube, *m*, is attached to one arm of the forked tube *o*; the other arm of *o* is attached to a pipe, *q*, proceeding from a bellows, or other means for supplying air. The solderer may work a bellows with his foot to supply his apparatus with air, or the men in a whole factory may be supplied from a blowing apparatus. A cock, *n*, regulates the supply of gas; *p* is a cock for regulating the supply of air; *r* is the pipe or tube in which the gas and air are mixed; *s*, the beak or tool from which issues the jet of flame, *t*, with which the workman operates.

The forked tube, *o*, is attached to the girdle of the workman, and the regulating cocks, *n* and *p*, are so placed, that by using one hand the man can allow the exact proportions of air and gas to issue. By stopping both cocks the flame is of course extinguished.

The beak, *s*, may be exchanged for others of every variety of form so as to produce jets of flame, adapted to any kind of work. Fig. 3, is a tool formed like the rosette of a watering-pot, capable of producing a most intense flame of jets.

Fig. 3

Fig. 4.

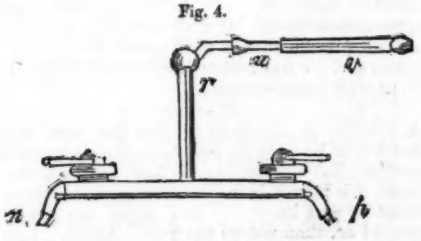


Fig. 4, allows a length of flame instead of a point to be produced; *n* is the hydrogen gas-pipe and cock; *p*, the air-pipe and cock; *r*, the tube in which air and gas mingle: *u*, a pipe with a longitudinal slit on one side of it, and *v*, another pipe covering *u*, and exactly fitting over it. Gas and air escaping from the slit, on being ignited, will produce a long strip of flame, which may be lengthened or shortened by sliding off or on the covering tube, *v*, on the slit tube, *u*.

Fig. 5 is a soldering tool, to be used where a jet of flame is not available, as in joining zinc. In this arrangement, the hydrogen and air flame heats a piece of copper, *y*, with which the work is performed. *w* is the tool, with a hollow handle and stalk; air being supplied by the pipe *p*, passes through the hollow handle and stalk; *x* is a small tube which passes down the hollow handle and stalk, *w*, and conveys gas from the pipe *n* to the extremity of *w*, where it mingles with the issuing air, and, on being ignited, the flame will heat the piece of copper, *y*, (which, of course, may be of the shape of any soldering tool required) held by the arms, *z*.

In another article we, will state some of the advantages and useful applications of this new method of soldering metals. The apparatus and the method of working it is exhibited daily at that useful institution, the Adelaide Gallery.

Fig. 5.

ON WILHEM'S METHOD OF TEACHING SINGING.

ADAPTED TO ENGLISH USE, UNDER THE SANCTION OF THE COMMITTEE OF PRIVY COUNCIL ON EDUCATION,

BY JOHN HULLAH.

II.

We have already stated that the vocal instructions on Wilhem's system are imparted in two different forms, *i. e.*, 1st, in a large class superintended by the Master himself, and 2nd, in smaller classes conducted by Monitors. In the course of instruction now being given at Exeter Hall, the former plan is followed, in order that all may receive tuition from Mr. Hullah himself; but we shall endeavour to describe the system in both its forms, first remarking that those who have not been present at the exercises of Mr. Hullah's pupils can form little idea of the grand effect produced by the harmonious combination of about three hundred voices when the advanced classes of the singing school unite in the performance of some of those fine old anthems, or those rich madrigals, which form the delight of all real lovers of music. And to those who are privileged to attend these meetings it is matter of no small astonishment to reflect, that at the commencement of the past year, the first step in the course which has led to such pleasing results, had not been taken, and that of these singers, whose performance seems now in many respects almost beyond the reach of criticism, not one had partaken of Mr. Hullah's instructions before the 1st of February, 1841. Certainly, there must be something unusually excellent in the system, as well as in the method of communicating it, thus to facilitate the progress of so many individuals of different capacities, and different degrees of vocal power.

For the instruction of the pupils (consisting chiefly of masters and mistresses of elementary schools) at Exeter Hall, one of the large rooms of the building is selected, in which the pupils are seated on benches with their faces directed towards a platform, on which the master (Mr. Hullah) takes his station. Two black boards are provided, on which words and musical notes may be written with chalk, so as to be read distinctly by all the pupils in the class. The master is provided with a tuning-fork, to determine the pitch of musical sounds, and a wand for beating time. The master commences his instructions with a lecture on the elements of music, expressing his meaning in simple language and in an audible tone. He draws a distinction between "noise" and "music," showing how the rolling of wheels, or the blows of a hammer, produce the former, and exemplifying the latter by the ringing of bells, and the singing of birds. He then explains the meaning of the term "musical passage," as being applied to a succession of musical sounds differing in their pitch or tone. He states that the term "scale" is applied to a series of eight musical sounds, gradually ascending in pitch, the highest being called the "octave" to the lowest, and very much resembling it in character. He shows that these eight sounds are not exactly equidistant one from another, two of the intervals being smaller than the others; and he exemplifies this by sketching a *ladder* on the board, or exhibiting one printed on a tablet, the ladder having eight bars or rounds, which are placed at intervals apart corresponding to the sounds of the musical scale. He explains that the scale is called "major" or "minor" according to the positions which the two smaller intervals occupy in it.

These truths in elementary music are conveyed in a manner calculated to keep the attention of the pupils constantly alive. Sometimes the master illustrates his meaning by singing a few notes; at other times by drawing explanatory figures on the board; and he occasionally interrogates his pupils individually to ascertain whether the real meaning of the instruction is properly understood. There are numerous little difficulties which embarrass the learner of music, and which the master takes care to smooth down when the proper time arrives; such, for example, as the unfortunate application of the word *tone* in two different meanings; the one relating to each of the larger intervals of the scale, and the other to the *quality* of the sound of a musical instrument. These two meanings of the word "tone" are obviously very different, and we know from experience how necessary it is for a learner to have them clearly explained. The word "tune" is also applied in an ambiguous manner, for we speak of a person "playing a tune," and of playing or singing "in tune," alluding in the first instance to a regular composition or melody, and in the second to the correctness of *pitch* in different notes. It forms a part of Wilhem's method to have these minor difficulties explained by the master as much as possible in a familiar and conversational manner.

The book in which the course of instruction is laid down is printed in chapters; while the instructions themselves are imparted to the pupils in separate lessons, each chapter and each lesson containing a small and convenient amount of information. We shall not attempt to follow the course of instruction, chapter by chapter, or lesson by lesson; but shall mention such points as seem worthy of observation.

After having explained that a "scale" which contains no more than eight sounds or notes, is called a "diatonic scale;" that the notes are numbered from 1 to 8, beginning from the lowest; that the larger intervals are called *tones*, and the smaller *semi-tones;* that when the two semitones are between the 3rd and 4th, and the 7th and 8th notes, the scale is called a *major scale;* the master proceeds to exercise the voices of his pupils by making them sing the eight notes of the *major diatonic scale;* holding up an open hand when they sing a tone, and a *closed* hand when they sing a semi-tone. This seems the proper place to make a few remarks respecting "musical voice," and "musical ear." The reader has perhaps imagined that Mr. Hullah's numerous pupils have been selected because they *can* sing, and that those persons who may not have sung a dozen notes correctly in their lives, are excluded from these classes. The reception of *all* who desire to learn is a peculiar feature in this method, founded on an opinion, (the confirmation of which would be a matter of much interest,) that there is

no such thing, except in cases of disease, as a real inability to sing. There are some sensible remarks on this point attached to the Prefatory Minute of the Council of Education in the volume before alluded to, in connexion with the announcement of a Singing-School for Schoolmasters.

It is believed that there is no lack of teachers influenced by the laudable desire to improve themselves and their schools; but some may hesitate to enrol themselves members of a singing class under an idea that they possess *no voice* or *no ear*. This apprehension has, however, seldom or never any foundation. Such persons must be informed that every individual in a state of average bodily health, is capable of producing musical sounds, unless the vocal organ has been the subject of some specific disease. Persons who cannot discriminate one musical passage from another are very rare exceptions to a general rule. 'Every ear,' says an ingenious writer on this subject, 'in a healthy state, is a musical ear; no voice, means a voice never exercised; no ear, means an ear whose power of attention has never been trained.' Frequent and well-directed practice will mend the least tuneful voice; and attention to the correct intonation of others will improve the most obstinate ear. A large body of voices, however uncultivated, is seldom materially out of tune; persons with good ears, are seldom misled by the incorrect intonation of those who have 'bad ears,' and the latter invariably, though perhaps imperceptibly, approximate the correctness of the former.

As far as our own opportunities of judging extend, in the circles of private society, we are fully prepared to join in the opinion that *every one* (with the few exceptions mentioned above) is capable of learning to sing, with moderate correctness as to tone, and with a quality of voice not altogether unmusical. The diffidence inspired by the custom of singing *alone*, or in presence of one or two auditors, is highly unfavourable to that development and exercise of voice and ear which are necessary for the production of even a moderately good singer. This diffidence is not felt when the learner is joined by many other pupils in a similar stage of progress. There is, besides, another reason why singing in class tends to produce accuracy of ear. Dr. Arnott states in one of his scientific works, that when the body of air in a building is vibrating with the sound of many voices singing in unison, there is a tendency to bring stray voices into agreement with the main body of the singers; a tendency of which the singers themselves are not conscious, but which has the effect of educating the ear to the appreciation of musical intervals. There are laws of acoustics, in relation to the vibration of sounding bodies, which tend to confirm this statement, and to place it on a philosophical basis.

To return to our subject. As alphabetical characters or some corresponding symbols, are necessary for the expression of our thoughts on paper, so are characters of some form or other requisite for the expression of musical sounds. The master, therefore, with the aid of chalk-marks on the board, or of printed tables, shows that sounds are expressed by round spots called "notes," and that the pitch or height of sounds is indicated by placing notes at various heights in the page or board. He explains that for the purpose of fixing this relative height musicians employ a set of five lines called a *stave;* that the notes may be placed on any one of these five lines, or on any of the spaces between them; that short lines, called *ledger-lines*, are placed above and below the stave, to contain such notes as are too high or too low to be contained within it. He calls to the pupils' minds the fact that while singing we sometimes hold a long time on one sound, and at other times only a limited period; and he explains that this variation in length is represented by giving tails or branches to the notes, by which they are distinguished as the representations of sounds of different length, to which the terms *minim*, *crochet*, *quaver*, &c., are applied. If two persons are playing or singing a duet, one of them frequently remains silent for a time while the other sings or plays; and even in a solo, the effect is frequently heightened by occasional intervals of silence; the master therefore explains the means by which these pauses are represented, in the use of rests of different forms.

When the pupils have acquired these elementary notions the master proceeds to the important subject of *names of notes*. He explains that as it is necessary to apply to musical notes some names by which they may be known, various expedients have been devised for this purpose. As the 8th note in the scale bears a singular resemblance to the 1st or lowest, the same name is—under whatever system of nomenclature—given to both; and as we may suppose another scale placed above the first, the 8th note becomes the basis or foundation for this upper scale; and each note bears the same name in both. There are thus only seven different names applied to the whole range of musical notes. These seven are in England generally the first seven letters of the alphabet, but as these letters are exceedingly difficult to *sing*, musicians on the Continent adopt the much more judicious plan of using seven short syllables, of no meaning in themselves, but capable of being sung in a musical manner. These syllables are *do, re, mi, fa, sol, la, si*, and they are employed in Wilhem's system, both as conducted in France, and as adapted to English practice by Mr. Hullah. This having been made clear, the master proceeds to explain how the notes are adjusted to the lines and spaces of the stave; whether, for example, the note *do* (which is a definite musical sound, having a determinate pitch) shall be placed on this or that line, this or that space of the stave. Men's voices are, by nature, an octave lower than those of females, but it is sometimes desirable to express them by the same lines and spaces, to avoid the use of too large a number of ledger lines. The master explains how this is effected by the use of certain symbols called *clefs*, whereby the note expressed on any given line or space of the stave, varies according to the clef which may be placed at the beginning of the piece of music.

Here we may mention a peculiar feature in the system, which though very simple, is of much practical service. The fingers and thumb of the extended hand are made to represent the five lines of the stave; while the spaces between the fingers represent the spaces between the lines of the stave. The master extends his own hand, and causes the pupil to do so likewise; and when any note is mentioned, the place which it occupies in the stave is represented by pointing to the proper finger with a finger of the other hand. By this means the pupil acquires a sort of *manual* knowledge of the position of notes. The master about this time also explains the qualities and the compass of different voices, such as *soprano, contralto, tenor*, and *bass*. He shows that in most modern music the *sol* or G clef is most generally used, and accustoms his pupils to study the stave in reference to this clef. We have been surprised at the ease with which a knowledge of the stave is acquired by the class in consequence of this method. In a lecture recently given by Mr. Hullah, at a scientific institution, where a number of his pupils were present, he stood before them with the hand extended, and pointed to the fingers and spaces of that hand. Whichever finger or space was denoted by the master's hand, the pupil immediately pronounced the name of the note, at the same time singing or "sol-fa-ing" it in the proper pitch. This term "sol-fa" means, to sing the notes of the scale in proper tone or pitch, but without attaching words to them; merely using the syllables, sol, fa, &c.

The precautions taken to secure correctness in keeping time, we shall allude to in another article on this highly interesting subject.

ST. MONICA.—Drawing near her end, she sent most pious thoughts as harbingers to heaven, and her soul saw a glimpse of happiness through the chinks of her sickness-broken body.—FULLER.

RURAL ECONOMY FOR THE MONTHS.

I.

JANUARY.

Yes, JANUARY's wintry face
Oft with as dark and deep a trace
The season's furrowing wrinkles plough
As mid December's clouded brow.
As deep the snow o'erwhelms the plains,
As firm the frost the stream enchains;
And even, as old experience says
In rustic saw, with "lengthening days"
On nature's works the "strengthening cold"
Oft keeps a firmer, longer hold.——MARY's *British Months.*

AT this season of the year, when vegetation is almost wholly in a dormant state, it may appear to such of our readers as are inhabitants of cities, and little acquainted with rural affairs, that agricultural employments are nearly suspended, and that the farmers must be enjoying a season of comparative leisure. In the monthly sketches of rural economy which we propose to lay before our readers during the present year, we hope to show that each season has its peculiar duties, and that the hand of industry is needed as much and as constantly in the varied scenes of country life, as in the regular routine of city engagements. In a climate so liable to changes as ours, it is impossible to indicate the agricultural employments of any month in the year with entire accuracy, but we may perhaps be able to draw a little picture of country life, that may interest and give pleasure to many that are debarred from participating inits enjoyments.

In walking abroad to enjoy the keen but bracing air of a morning in January, the ear rather than the eye convinces us that rural labour is going on briskly around us. From the farm-yard proceed the well-known sounds occasioned by the busy threshing machine or quick resounding flail, while from the distant plantation we hear the duller strokes of the woodman's axe conveyed at intervals through the clear frosty air. While the land is for the most part allowed a season of rest, this is the favourable opportunity for timber felling. Where trees are to be taken up by the root and planted elsewhere, the spring or the autumn is the proper time for doing so; and where they are valuable for their barks they should be left untouched till the sap rises in April or May; but where the plantation needs thinning for the purpose of affording timber or fuel, this is the best time to set about the work; therefore—

Forth goes the woodman, leaving unconcerned
The cheerful haunts of man: to wield the axe,
And drive the wedge, in yonder forest drear,
From morn to eve his solitary task.
Shaggy, and lean, and shrewd, with pointed ears,
And tail cropped short, half lurcher and half cur,
His dog attends him. Close behind his heel
Now creeps he slow; and now with many a frisk
Wide-scampering, snatches up the drifted snow
With ivory teeth, or ploughs it with his snout;
Then shakes his powdered coat, and barks for joy.
Heedless of all his pranks the sturdy churl
Moves right towards the mark.

The operation of felling timber is performed in two ways. The more complete method is to dig an excavation round the stem of the tree, and to cut the roots at two or three feet distance from it. The ground is thus more effectually cleared, and prepared for other uses, while the root of the tree is obtained for immediate application to such purposes as it may be destined for. The second method is generally employed where much care is required in taking down the tree, so as not to injure any neighbouring object. This is merely to cut through the stem at the surface, and leave the root to be dug out afterwards. In cutting large trees, in order to make the tree fall the way it is required, the cross-cut saw is entered on the side the tree is intended to fall, and the trunk is cut about a third part through; the saw is then entered at the other side, and when it is cut so far as to admit a wedge, that instrument is placed exactly opposite the place where the tree is to fall, and is driven slowly and constantly till the tree is nearly cut through. The tree being felled is next divested of its branches, which are sorted according to the uses they are to be applied to. These are various, for the noble ornaments of our woods and plantations are no less important in their applicability to the service of man, than beautiful and refreshing to his sight. The brushwood, or spray of trees, may be used for fences, or for common fuel; it may be turned into charcoal, or distilled for pyroligneous acid; or it may be used instead of thatch for roofing cottages. The spray of some trees, as, for instance, the oak, willow, birch, and mountain-ash, may be used in tanning. The brushwood of the elm, poplar, and lime, is sometimes used for feeding cattle, and in Sweden is regularly dried like hay, and stacked for that purpose.

When the brushwood is laid aside for some of the purposes above mentioned, the trunk is either preserved whole for the purchaser, or it is cut in two, and the root-cut, or butt-end, being the most valuable, sold for one class of purposes at a higher price, while the top-cuts are sold for others at a somewhat lower price. We cannot here detail the different methods of seasoning timber; the common mode is to evaporate the sap by the natural warmth of the atmosphere, taking care to shelter the timber from the direct action of the sun and wind. Artificial means are also employed to shorten the process. It has been found an excellent plan to soak fir and larch timber in water strongly impregnated with lime. In consequence of this soaking, the saccharine matter in the wood, on which the worm is believed to live, is either altogether changed or completely destroyed. Scotch fir-wood employed in roofing houses, and other out-door work, treated in this manner, has stood in such situations for thirty years sound and without the appearance of a worm. In a very few years timber so employed without such preparation, would be eaten through by that insect. The consideration of the best method of preparing timber for the use of the navy, has led to the process, called, from the name of its inventor, Kyanizing. This method has already been described to our readers in the *Saturday Magazine*, Vol. XVIII, p. 221.

We have noticed the disposal of the brush-wood and trunk of felled trees; the root still remains to be spoken of. This should be eradicated as completely as possible, but in the case of large trees it is a work of trouble and difficulty. The means resorted to are splitting by wedges, rifting by gunpowder, tearing up by the common lever or the hydrostatic press. There is a small demand for compact ash and oak roots from smiths, leather-cutters, &c., but the general mode of disposing of them is to cut them up in pieces not more than three feet long and six inches in diameter, and put them up in stacks to dry.

Such are a few of the operations consequent on the woodman's task, and such is the department of labour particularly appropriate to the present season. Inactivity is a thing unknown in the natural world; when the whole vegetable creation seems reduced to a state of torpidity, those secret processes are gradually at work by which the face of nature is to be again renewed to life and beauty; so, happily for man, there is no season of the year when he may safely rest unemployed; even at that period when the face of things would lead him to conjecture that nothing remained to be done, he has only to look attentively about him, and he will find that there are occupations for him that could be carried on at no other time of the year so fitly or so well. And so much is his happiness connected with the industrious employment of his time, that we find in that circumstance, a mitigation of the original curse, "In the sweat of thy face shalt thou eat bread."

Leaving to a future time the consideration of the labours connected with the threshing out of the corn; labours, which though they are actively carried on

during the present month, are also common to other seasons of the year, we will look abroad once more over the open country, and see what is going on in the pastures. It is a very common practice to carry out manure for grass land during frosty weather; but this custom is disapproved of by many agriculturists, on the ground that the fertilising properties of the manure are dissipated and washed away by the snow and rain, before they can have time to penetrate the soil. In the county of Middlesex, where almost all the grass lands are kept for hay, the manure is always laid on in October, while the land is sufficiently dry to bear the loaded carts without injury, and when the heat of the weather has so far subsided as not to exhale the volatile parts of the dung. In some places it is applied immediately after the hay season, from the middle of July to the end of August. At whatever time it may be done, there are meadows which require regular supplies of manure, and these we shall describe. There are three kinds of perennial grass lands fit for mowing, *i.e.*, river meadows, uplands, and bog-meadows. The most valuable are those which are situated near streams or are kept moist by irrigation. In these river meadows the soil is deep and commonly alluvial, having been formed by gradual deposition from the water, or washed down from some neighbouring eminence; the mowing and pasturing of such meadows is therefore easily adjusted so as to keep the land in good condition without laying on manure.

The next in value to the river meadows are the upland pastures. The culture of these requires more attention and expense; they are more difficult to drain, and require constant supplies of manure. One of the most beautiful plants to be found at this season is a great enemy to grass lands; we mean moss, which in some of the species is so much admired by the general observer, as well as by the botanist. The luxuriant growth of this plant is fatal to the welfare of the pasture; and the only means which have been found available to check its growth, and finally destroy it, are the strengthening of the grass plants themselves by regular supplies of manure, so that they may by their own vigorous growth hinder and prevent that of their enemy. Another evil to which upland meadows are liable, if they fall into a neglected state, is, the increase of ant-hills, which sometimes prevail to such an extent as to destroy in a great measure the value of the pasture. In order to remove these, some agriculturists are in the habit of digging up the ant-hills at the beginning of the winter, three or four inches below the surface of the ground, and then cutting them in pieces, and scattering them about; but this is not found to be an effectual remedy to the evil; the ants being disseminated rather than destroyed by this plan. A better method seems to be to cut the hills entirely off, and let them lie whole at a little distance in an inverted position. The ants, reluctant to quit their home, are little disturbed by this proceeding, but adhere to their old abode, till the rain running into their holes of communication and the frosts which now easily penetrate, gradually destroy their community. Another plan is to take away the hills to some convenient spot and make a compost of them with quick lime.

Another rural employment for the present month is *hedging*, an operation to which England owes much of its pleasing and garden-like appearance. Well-made hedges form the most lasting and effectual of fences. Not even stone or brick walls can surpass them in keeping out trespassers of every description, while they are far inferior to them in other respects, and give a cold and cheerless aspect to the country. The various kinds of thorns are peculiarly adapted for hedge-rows, and we find them almost universally employed for that purpose. To have a good hedge, the soil in which it is planted must be strong, but well pulverised; the decayed sods of old pastures or commons generally promote a luxurious growth of the plants. There are different ways of forming a live fence; the common method is to plant two or three rows of quick in the side of a bank, on a level with the surface of the ground, where a sod has been turned over, and forms the base of the bank raised by the earth taken out of the ditch. This requires to be protected from sheep and cattle. Sometimes the quick is planted in two or three parallel rows on the top of the bank, which in this case is made much wider, with a ditch on each side. By this method a double fence is required, but this makes by far the most efficient hedge. In a dry soil ditches are unnecessary, and the hedge is then planted on a little bank formed by a few sods about eighteen inches wide, with a small water furrow on each side. The greatest objection to the bank and ditch fence arises from its taking up so much room. It is calculated that if the fields are squares of ten acres each, which is a convenient size, each field will, by this mode of fencing, have 1320 feet of fence in length, taking up 10,560 square feet of land, which is nearly a quarter of an acre; and that, if to this be added the outer fences against roads, woods, or commons, nearly one acre in twenty-five is taken up by banks and hedges. Where it is practical, it is therefore always advisable to have a simple hedge, without any ditch. We must omit the practical details of hedging and ditching as too comprehensive a subject for our present purpose; suffice it to say, that while they are operations which are absolutely necessary to the welfare of the farmer, they are some of the most trying to the constitutions of those employed in them. To stand for hours, as many of our labourers do, in the half frozen water of ditches or in other wet or marshy situations at this season of the year, requires the inuring influence of habit, besides a hardy state of health, to bear it.

While such employments as these occupy a portion of our rustics, there are many other cares devolving on those who have the charge of cattle. In severe weather much attention is required to prevent our flocks and herds from suffering from its effects. Our recent account of the snow-storms prevalent in the Highlands of Scotland, will give an idea of the dangers to which flocks are exposed in that part of the kingdom; and though we are happily ignorant of calamities to the same extent, yet there is annually some loss sustained by occurrences of a like nature, but of a mitigated kind. Rainy weather, when long continued, is, however, far more fatal to the generality of our sheep than hard frost, and in this respect, the present month, which is frequently a dry one, is not to be considered as their worst season.

The home-stock likewise needs a watchful eye, that all may be kept warm, well-fed, and protected from the assaults of their enemies. The interrogations of the master to the farmer's boy, so well given by Bloomfield, must now be often put by such as are anxious for the well-being of their live-stock.

> Left ye your bleating charge, when daylight fled,
> Near where the hay-stack lifts its snowy head?
> Whose fence of bushy furze, so close and warm,
> May stop the slanting bullets of the storm.
> For, hark! it blows; a dark and dismal night:
> Heaven guide the traveller's fearful steps aright!
> Now from the woods, mistrustful and sharp eyed,
> The fox in silent darkness seems to glide,
> Stealing around us, listening as he goes,
> If chance the cock, or stammering capon crows,
> Or goose, or nodding duck, should darkling cry,
> As if apprized of danger lurking nigh:
> Destruction waits them, Giles, if e'er you fail
> To bolt their doors against the driving gale.
> Strewed you (still mindful of the unsheltered head)
> Burdens of straw, the cattle's welcome bed?
> Thine heart should feel, what thou may'st hourly see,
> *That duty's basis is humanity.*

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